

What is claimed is:

1. A method for inhibiting fusion of HIV-1 to CD4⁺ cells which comprises contacting CD4⁺ cells with a non-chemokine agent capable of binding to a chemokine receptor in an amount and under conditions such that fusion of HIV-1 to the CD4⁺ cells is inhibited.
2. A method for inhibiting HIV-1 infection of CD4⁺ cells which comprises contacting CD4⁺ cells with a non-chemokine agent capable of binding to a chemokine receptor in an amount and under conditions such that fusion of HIV-1 to the CD4⁺ cells is inhibited, thereby inhibiting HIV-1 infection.
3. The method of claim 1 or 2, wherein the non-chemokine agent is an oligopeptide.
4. The method of claim 1 or 2, wherein the non-chemokine agent is a polypeptide.
5. The method of claim 1 or 2, wherein the non-chemokine agent is an antibody or a portion of an antibody.
6. The method of claim 1 or 2, wherein the non-chemokine agent is a nonpeptidyl agent.
7. A non-chemokine agent capable of binding to a chemokine receptor and inhibiting fusion of HIV-1 to CD4⁺ cells.
8. The non-chemokine agent of claim 7, wherein the non-chemokine agent is a oligopeptide.
9. The non-chemokine agent of claim 7, wherein the non-chemokine agent is a nonpeptidyl agent.

10. The non-chemokine agent of claim 7, wherein the non-chemokine agent is a polypeptide.
- 5 11. The non-chemokine agent of claim 10, wherein the polypeptide is an antibody or a portion of an antibody.
12. The non-chemokine agent of claim 10, wherein the polypeptide comprises amino acid sequence as set forth in SEQ ID NO:5.
- 10 13. The non-chemokine agent of claim 10, wherein the polypeptide comprises the MIP-1 β sequence with the deletion of the first seven N-terminal amino acids of said sequence.
- 15 14. The non-chemokine agent of claim 10, wherein the polypeptide comprises the MIP-1 β sequence with the deletion of the first eight N-terminal amino acids of said sequence.
- 20 15. The non-chemokine agent of claim 10, wherein the polypeptide comprises the MIP-1 β sequence with the deletion of the first nine N-terminal amino acids of said sequence.
- 25 16. The non-chemokine agent of claim 10, wherein the polypeptide comprises the MIP-1 β sequence with the deletion of the first ten N-terminal amino acids of said sequence.
- 30 17. The non-chemokine agent of claim 10, wherein the polypeptide comprises the MIP-1 β sequence with the N-terminal sequence modified by addition of an amino acid or oligopeptide.
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18. The non-chemokine agent of claim 10, wherein the polypeptide comprises the MIP-1 β sequence with the N-terminal sequence modified by removing the N-terminal alanine and replacing it by serine or threonine and an additional amino acid or oligopeptide or nonpeptidyl moiety.
19. The non-chemokine agent of claim 17 or 18, wherein the additional amino acid is methionine.
20. An agent capable of binding to CXCR4 and inhibiting HIV-1 infection.
21. The agent of claim 20, wherein the agent is an oligopeptide.
22. The agent of claim 20, wherein the agent is a polypeptide.
23. The non-chemokine agent of claim 22, wherein the polypeptide comprises the SDF-1 sequence with the deletion of the first six N-terminal amino acids of said sequence.
24. The non-chemokine agent of claim 22, wherein the polypeptide comprises the SDF-1 sequence with the deletion of the first seven N-terminal amino acids of said sequence.
25. The non-chemokine agent of claim 22, wherein the polypeptide comprises the SDF-1 sequence with the deletion of the first eight N-terminal amino acids of said sequence.
26. The non-chemokine agent of claim 22, wherein the

polypeptide comprises the SDF-1 sequence with the deletion of the first nine N-terminal amino acids of said sequence.

- 5 27. The non-chemokine agent of claim 22, wherein the N-terminal glycine of SDF-1 is replaced by serine and derivatized with biotin.
- 10 28. The non-chemokine agent of claim 22, wherein the N-terminal glycine of SDF-1 is replaced by serine and derivatized with methionine.
- 15 29. The non-chemokine agent of claim 22, wherein the N-terminus of SDF-1 is modified by the addition of a methionine before the terminal glycine.
- 30 30. The agent of claim 22, wherein the agent is an antibody or a portion of an antibody.
- 20 31. The agent of claim 20, wherein the agent is a non-peptidyl agent.
- 25 32. A pharmaceutical composition comprising an amount of the non-chemokine agent of claim 7 effective to inhibit fusion of HIV-1 to CD4⁺ cells and a pharmaceutically acceptable carrier.
- 30 33. A pharmaceutical composition comprising an amount of the non-chemokine agent of claim 20 effective to inhibit fusion of HIV-1 to CD4⁺ cells and a pharmaceutically acceptable carrier.
- 35 34. A composition of matter capable of binding to a chemokine receptor and inhibiting fusion of HIV-1 to CD4⁺ cells comprising a non-chemokine agent linked to

a ligand capable of binding to a cell surface receptor of the CD4⁺ cells other than the chemokine receptor such that the binding of the non-chemokine agent to the chemokine receptor does not inhibit the binding of the ligand to the other receptor.

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35. The composition of matter of claim 34, wherein the cell surface receptor is CD4.
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36. The composition of matter of claim 34, wherein the ligand comprises an antibody or a portion of an antibody.
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37. A pharmaceutical composition comprising an amount of the composition of matter of claim 34 effective to inhibit fusion of HIV-1 to CD4⁺ cells and a pharmaceutically acceptable carrier.
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38. A composition of matter capable of binding to the chemokine receptor and inhibiting fusion of HIV-1 to CD4⁺ cells comprising a non-chemokine agent linked to a compound capable of increasing the *in vivo* half-life of the non-chemokine agent.
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39. The composition of matter of claim 38, wherein the compound is polyethylene glycol.
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40. A pharmaceutical composition comprising an amount of the composition of claim 38 effective to inhibit fusion of HIV-1 to CD4⁺ cells and a pharmaceutically acceptable carrier.
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41. A method for reducing the likelihood of HIV-1 infection in a subject comprising administering the pharmaceutical composition of claim 32, 33, 37 or 40 to

the subject.

42. A method for treating HIV-1 infection in a subject comprising administering the pharmaceutical composition of claim 32, 33, 39 or 40 to the subject.
43. A method for determining whether a non-chemokine agent is capable of inhibiting the fusion of HIV-1 to a CD4⁺ cell which comprises:
- (a) contacting (i) a CD4⁺ cell, which is labeled with a first dye, with (ii) a cell expressing the HIV-1 envelope glycoprotein on its surface, which is labeled with a second dye, in the presence of an excess of the agent under conditions permitting the fusion of the CD4⁺ cell to the cell expressing the HIV-1 envelope glycoprotein on its surface in the absence of the agent, the first and second dyes being selected so as to allow resonance energy transfer between the dyes;
 - (b) exposing the product of step (a) to conditions which would result in resonance energy transfer if fusion has occurred; and
 - (c) determining whether there is a reduction of resonance energy transfer, when compared with the resonance energy transfer in the absence of the agent, a decrease in transfer indicating that the agent is capable of inhibiting fusion of HIV-1 to CD4⁺ cells.
44. The method of claim 43, wherein the agent is an oligopeptide.
45. The method of claim 43, wherein the agent is a polypeptide.

46. The method of claim 43, wherein the agent is an antibody or a portion of an antibody.
- 5 47. The method of claim 43, wherein the agent is a nonpeptidyl agent.
48. The method of claim 43, wherein the CD4⁺ cell is a PM1 cell.
- 10 49. The method of claim 43, wherein the cell expressing the HIV-1 envelope glycoprotein is a HeLa cell expressing HIV-1_{JR-FL} gp120/gp41.
- 15 50. The method of claim 43, wherein the cell expressing the HIV-1 envelope glycoprotein is a HeLa cell expressing HIV-1_{LAI} gp120/gp41.